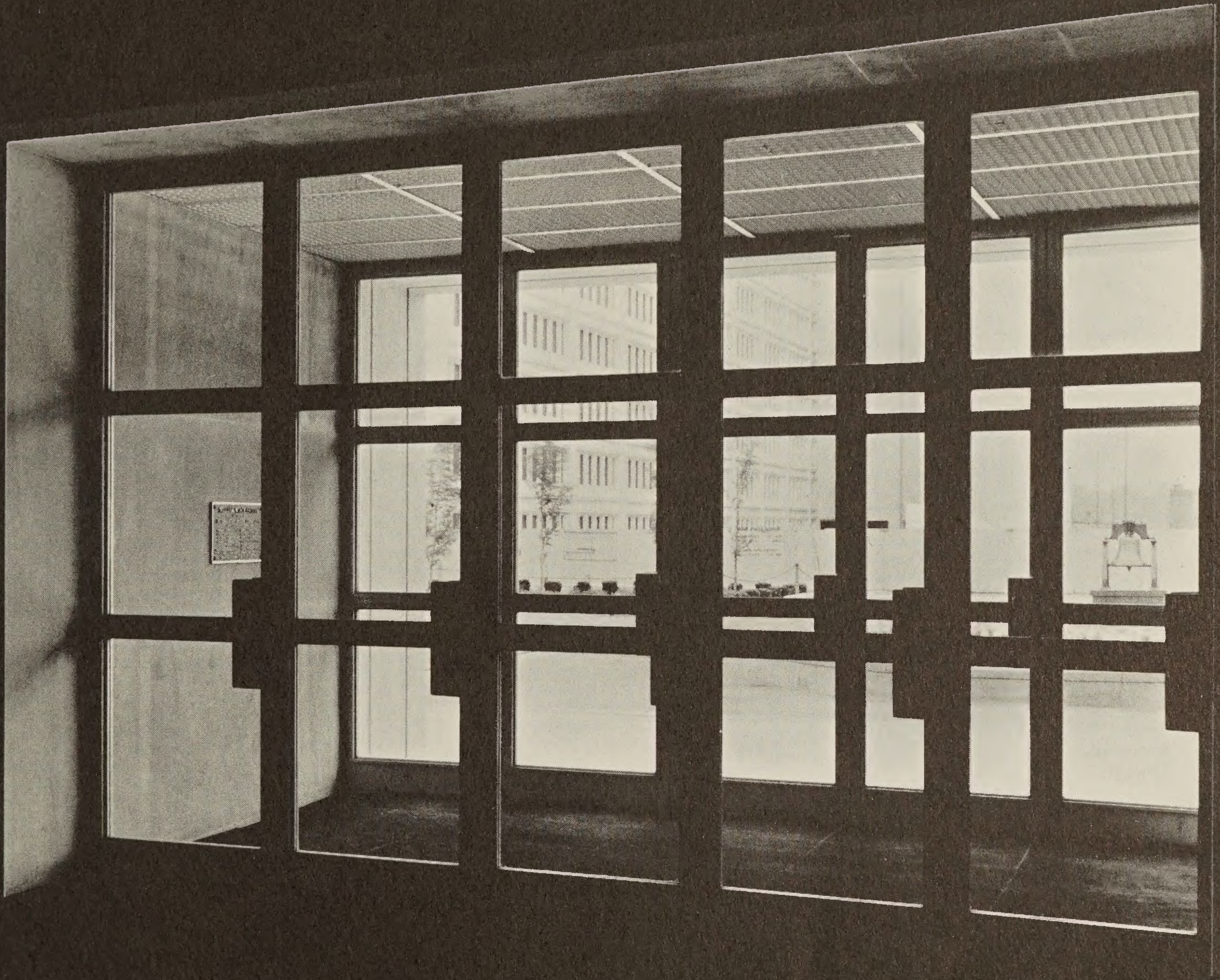
doors and entrances



THE MICHAELS ART BRONZE CO.

CUSTOM METAL ENTRANCES BY

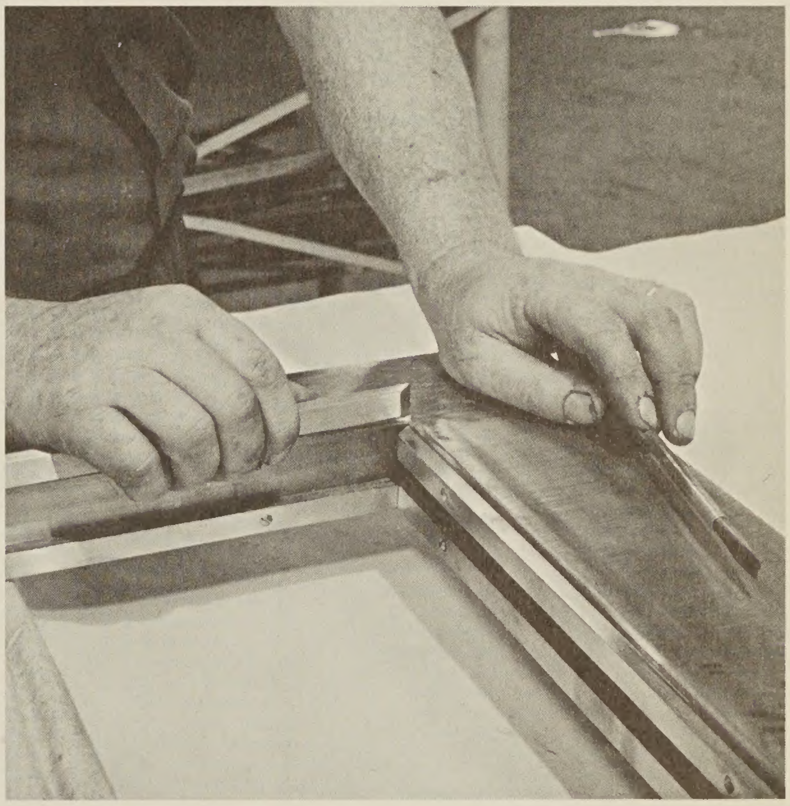
Michaels quality design and fabrication provides doors and entrances of high strength, distinctive beauty and long range economy.

The entrance is a visual and psychological focal point—a major element in forming the first impression of a building. In controlling the transition from outdoor to indoor space, the entrance is seen and operated by everyone entering and leaving a building. Discerning architects recognize the importance of the appearance and durability of this element of the building, and require the highest standards of design and construction. The Michaels Art Bronze Company has served architects for years by manufacturing custom doors and entrances of the highest quality for a wide variety of architectural applications.

The many advantages of design and construction freedom often make custom doors the optimum architectural solution. The traditional advantages of custom doors—infinitely variable opening size, distinctive design and detailing, a virtually unlimited range of hardware accommodation, and a wide variety of quality finishes—are generally well known to architects. There are, however, other important advantages of Michaels custom doors. Typical doors in modern buildings are installed with a number of hardware items. Hardware adds weight, and hardware accommodation often requires cuts in the basic door structure. Without properly designed reinforcing, door structure can be seriously weakened—weakened enough to shorten door life and increase maintenance due to sagging and misalignment. At Michaels, doors, frames and hardware are designed as an integrated unit. The architect's drawings and the hardware schedule are brought together in the design stage, and reinforcing is detailed in shop drawings before fabrication starts. Reinforcing becomes a basic element of the door, and is incorporated into the door structure during the phase of fabrication when it can best be installed. The importance of this approach to door design and construction, and its superiority to the manner in which non-standard hardware is normally accommodated to standard doors, can hardly be overemphasized.

THE MICHAELS ART BRONZE CO.

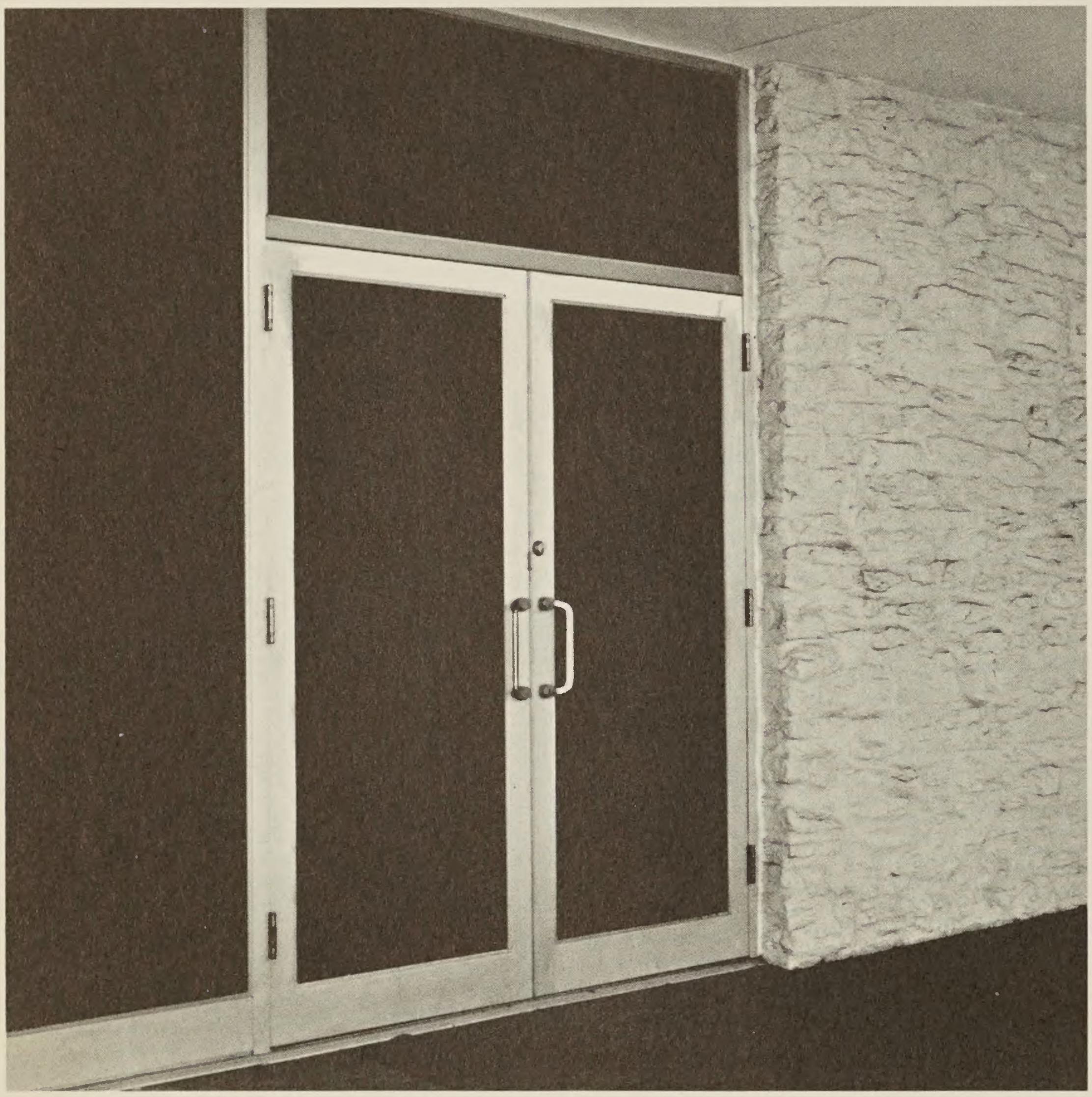
Longer life with lower maintenance due to superior strength and design is only part of the reason custom doors often represent a better value than standard doors. A less obvious aspect of value lies in the comparatively low cost of hardware installation with Michaels doors. When non-standard hardware is specified on standard doors, a common practice with many architects, installation costs almost invariably run higher than identical hardware installed on Michaels doors. When a large number of hardware items are to be installed, Michaels custom doors often become directly competitive in price. Architects should understand "custom doors are too expensive" is an oversimplification often resulting from a superficial examination of prices. When the potential contribution of the entrance is compared to the total building investment, it becomes apparent that the entrance is not the place to economize.

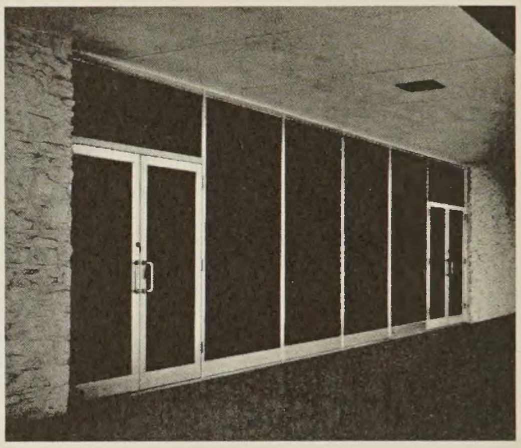


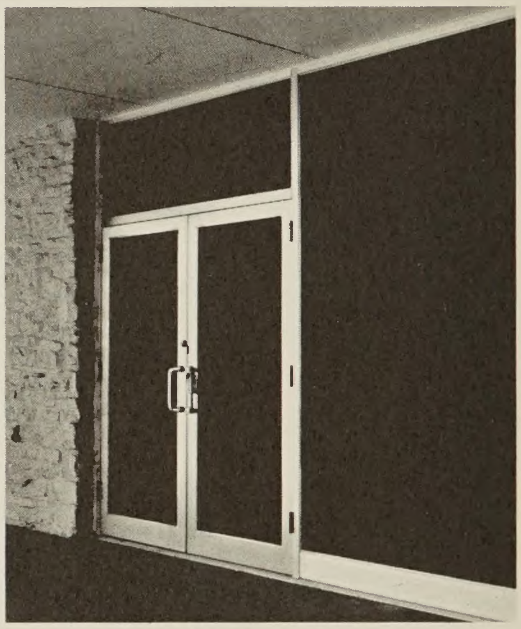
Michaels has been among the acknowledged leaders in the exacting field of high quality architectural metal work for almost a century. These years of experience have established traditions of quality craftsmanship and high standards of service to architects and contractors.

From initial design assistance through erection responsibility, Michaels offers outstanding service in the design, fabrication and erection of quality custom doors and entrances. The doors and entrances in this brochure have been selected to illustrate a range of expression which demonstrates the skill and flexibility of Michaels engineers and craftsmen. While construction shown is typical, details may be varied to suit individual conditions.

HEAVY DUTY ALUMINUM DOORS

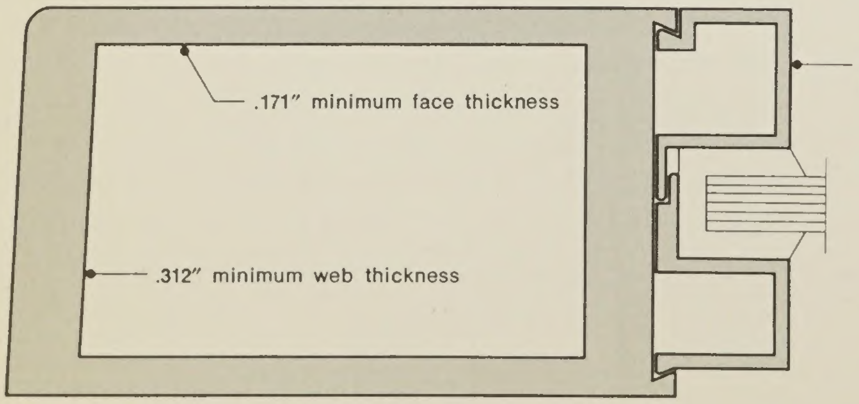






William Cooper Procter Hall
University of Cincinnati, Cincinnati, Ohio
Architects: Woodie Garber & Associates

FULL SIZE SECTION OF HEAVY DUTY STILE EXTRUSION

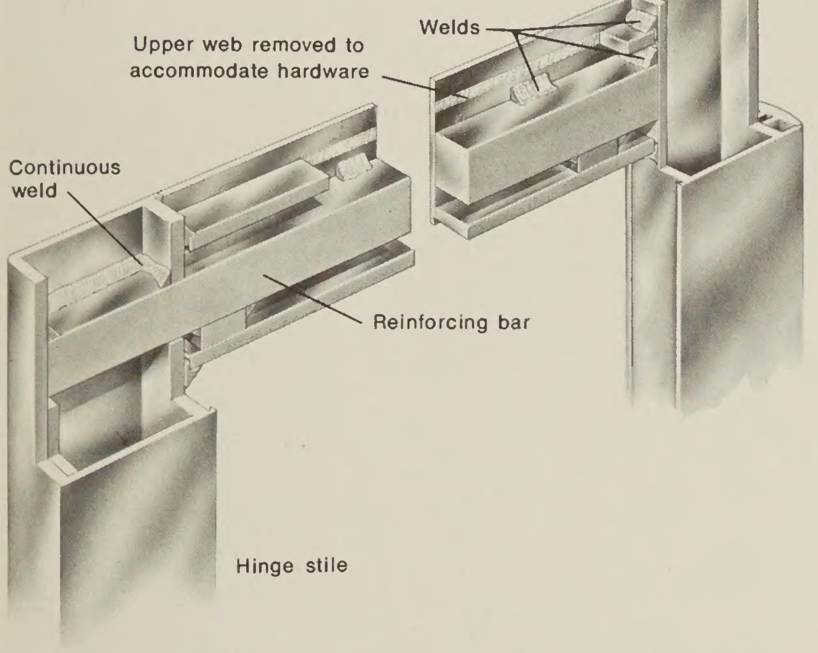


Snap-in glazing members are available flush (top) or recessed (below)

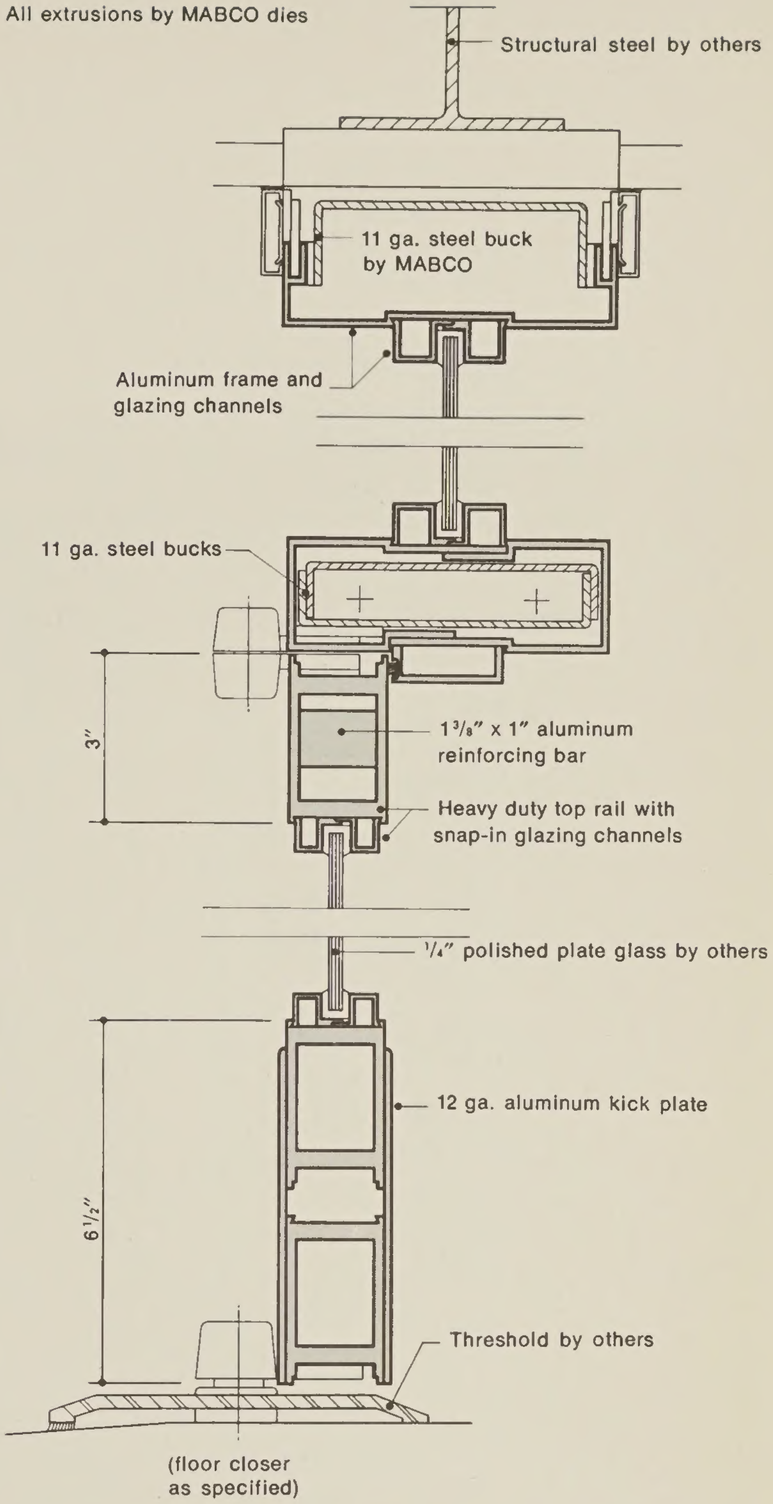
Exceptional thickness of faces and webs of extruded members provides added strength and rigidity. Extrusions are available from Michaels dies for beveled and bullnosed stiles and 3″ and 5″ rails.

The Michaels heavy duty aluminum door was developed to stand up under traffic conditions where other hollow metal doors failed—in schools, dormitories and terminals. Massive extrusions and reinforcing and all-welded construction provide unsurpassed strength and rigidity. The heavy duty aluminum door may be pre-engineered to accept virtually any required hardware combination. Precision assembly and careful finishing make the joint between rails and stiles almost invisible.

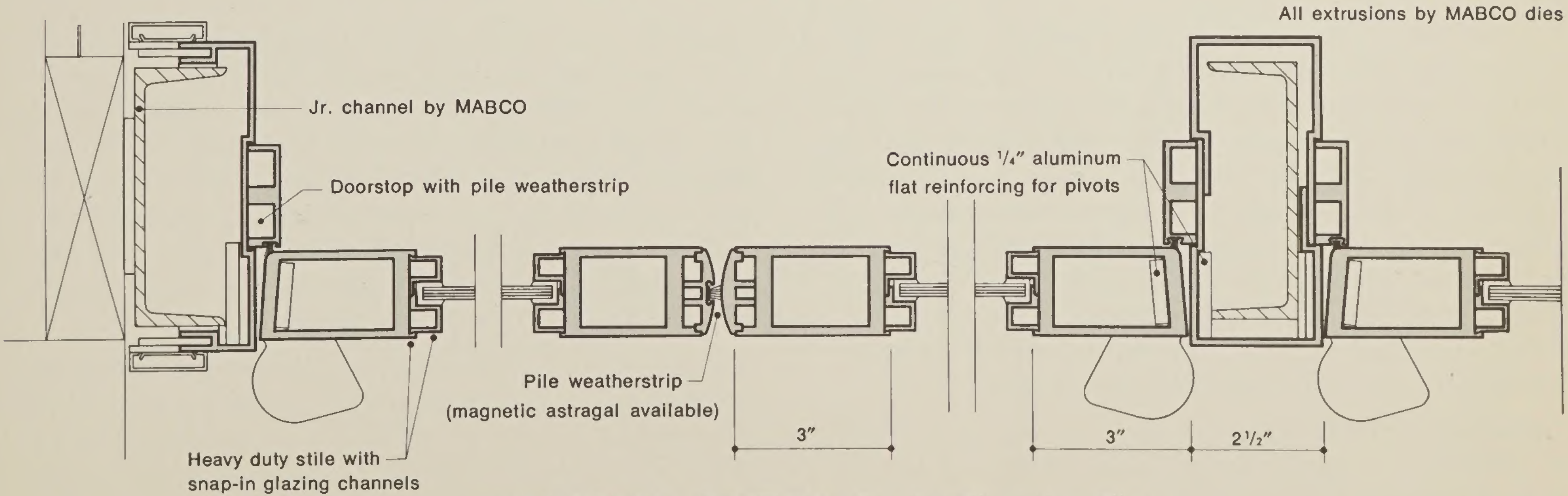
TOP RAIL REINFORCING DETAILS



Where cuts in basic door structure are made to accommodate hardware, as above where the web of the top rail is removed to accept a hold-open, the door is heavily reinforced. A 1 3/8″ x 1″ aluminum reinforcing bar runs continuously from the inside web of the lock stile to the outside web of the hinge stile, and is welded at all points of contact with the webs. The reinforcing bar is tack welded to the inside of the top rail to further increase structural integrity.

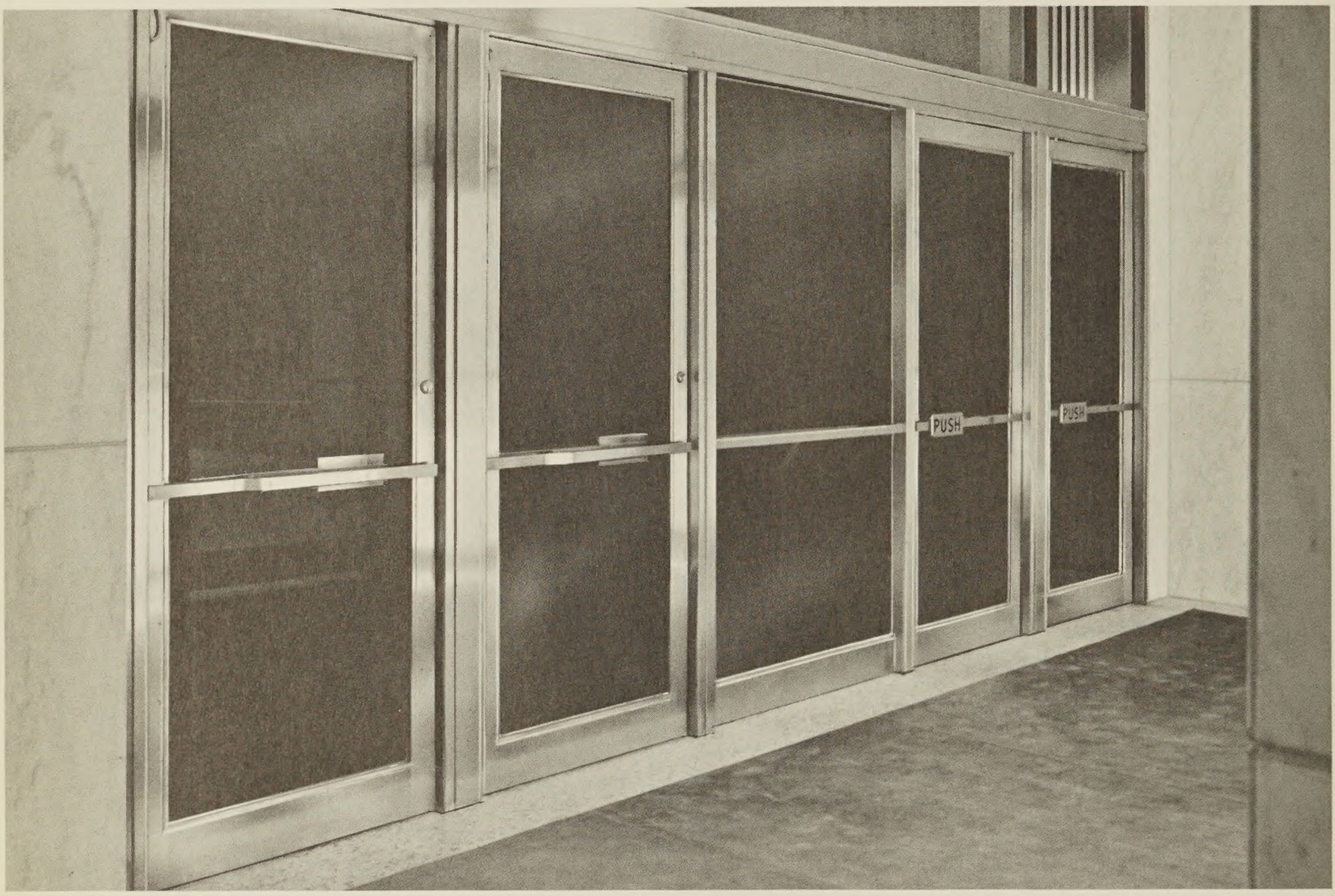

All extrusions by MABCO dies
Structural steel by others
11 ga. steel buck by MABCO
Aluminum frame and glazing channels
11 ga. steel bucks
3″
1 3/8″ x 1″ aluminum reinforcing bar
Heavy duty top rail with snap-in glazing channels
1/4″ polished plate glass by others
12 ga. aluminum kick plate
6 1/2″
Threshold by others
(floor closer as specified)

VERTICAL SECTION Scale: 3″ = 1′ – 0″


All extrusions by MABCO dies
Jr. channel by MABCO
Doorstop with pile weatherstrip
Continuous 1/4″ aluminum flat reinforcing for pivots
Pile weatherstrip (magnetic astragal available)
Heavy duty stile with snap-in glazing channels
3″
3″
2 1/2″

HORIZONTAL SECTION Scale: 3″ = 1′ – 0″

STAINLESS STEEL DOORS



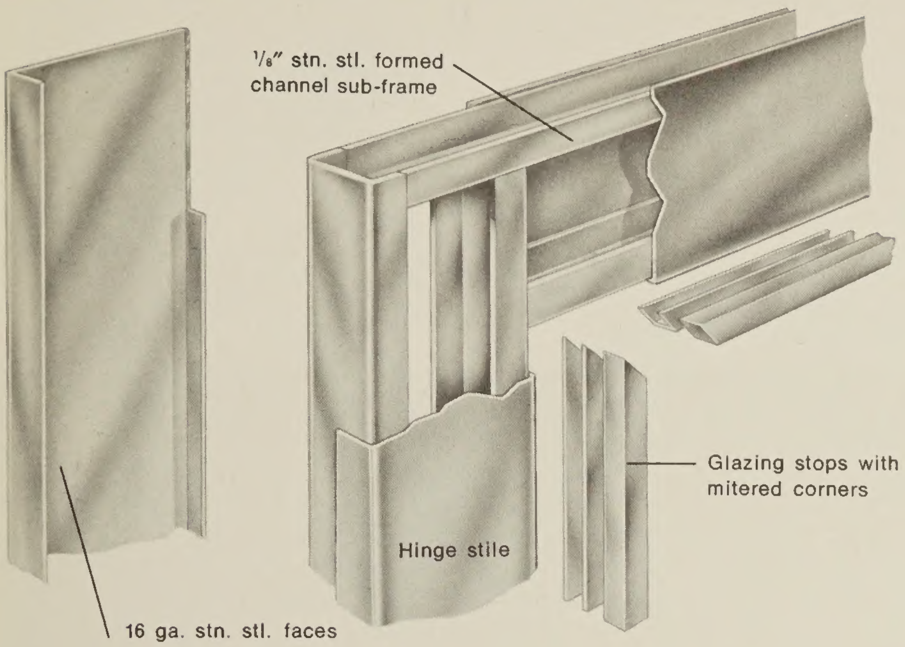
Buffalo and Erie County Public Library
Buffalo, New York
Architects: James W. Kideney and Associates and Paul Harbach and Elon B. Clark, Jr.

The handsome appearance, high strength, and durability of stainless steel has made it the top choice for doors where heavy traffic exposure is combined with a corrosive environment. The hardest of the architectural metals, stainless steel possesses a rare combination of eye appeal, strength, and resistance to deterioration. Michaels was a pioneer in developing fabrication techniques for architectural stainless steels, and their years of experience in forming, fastening and finishing this demanding material are expressed in every Michaels stainless steel door.

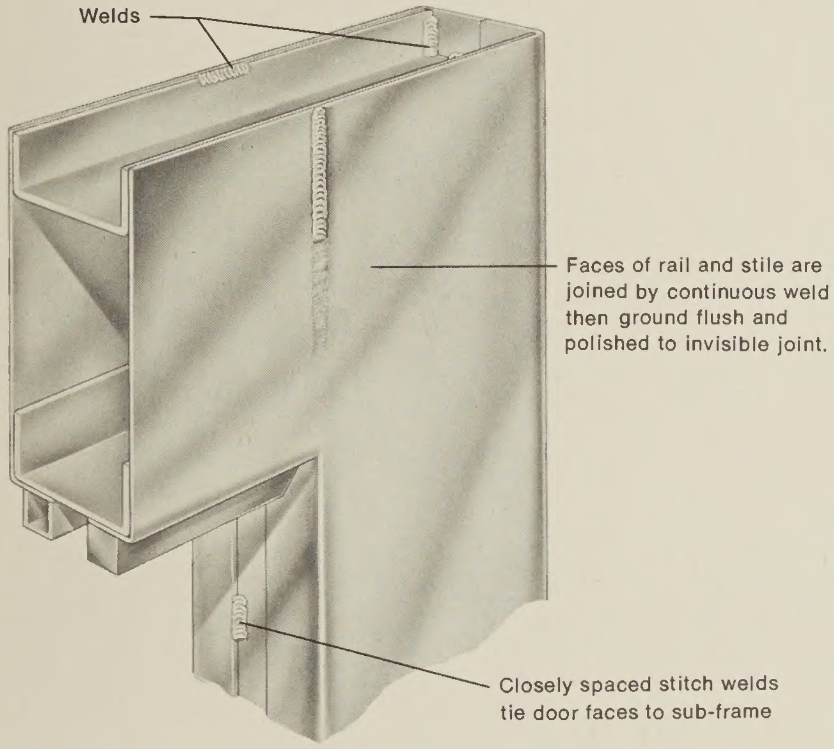
Doors may be fabricated in any rail and stile width to achieve a desired architectural effect. Construction detailed at right is typical, with 16 gage formed stainless steel sheet over a sub-frame of 1/8″ formed stainless channels. In all cases hardware accommodation and strength requirements are coordinated in the design stage by Michaels engineers. Rails and stiles are joined by a continuous weld which is ground and polished to form a completely invisible joint. Closely spaced tack welds around the inner and outer perimeters complete the structure and produce a door of exceptional strength and rigidity.

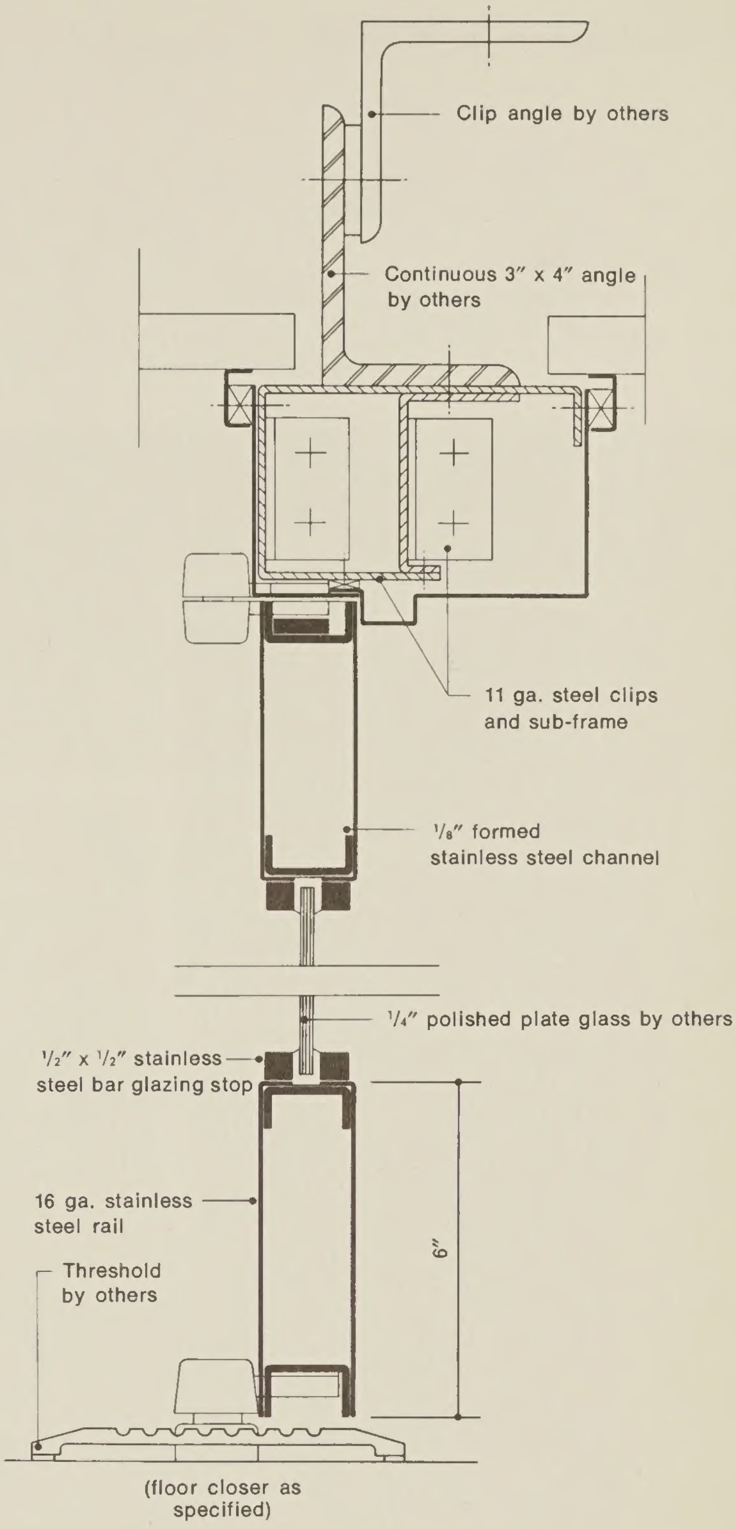
Glazing stops are mechanically fastened and may be finished with either butted or mitered corners. After attachment, heads of fasteners on exterior glazing stops are ground flush and polished to enhance appearance and prevent tampering.

DETAILS OF SUB-FRAME CORNER CONSTRUCTION

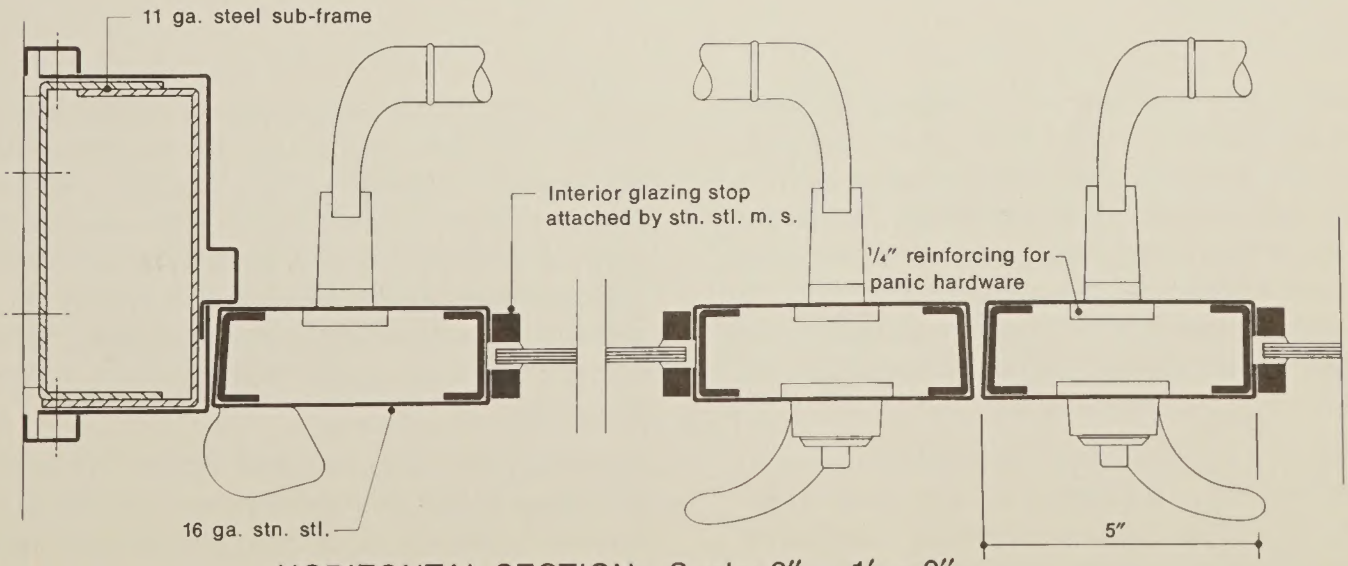

1/8" stn. stl. formed channel sub-frame
Glazing stops with mitered corners
Hinge stile
16 ga. stn. stl. faces

CORNER DETAIL CUTAWAY SHOWS WELDED CONSTRUCTION


Welds
Faces of rail and stile are joined by continuous weld then ground flush and polished to invisible joint.
Closely spaced stitch welds tie door faces to sub-frame

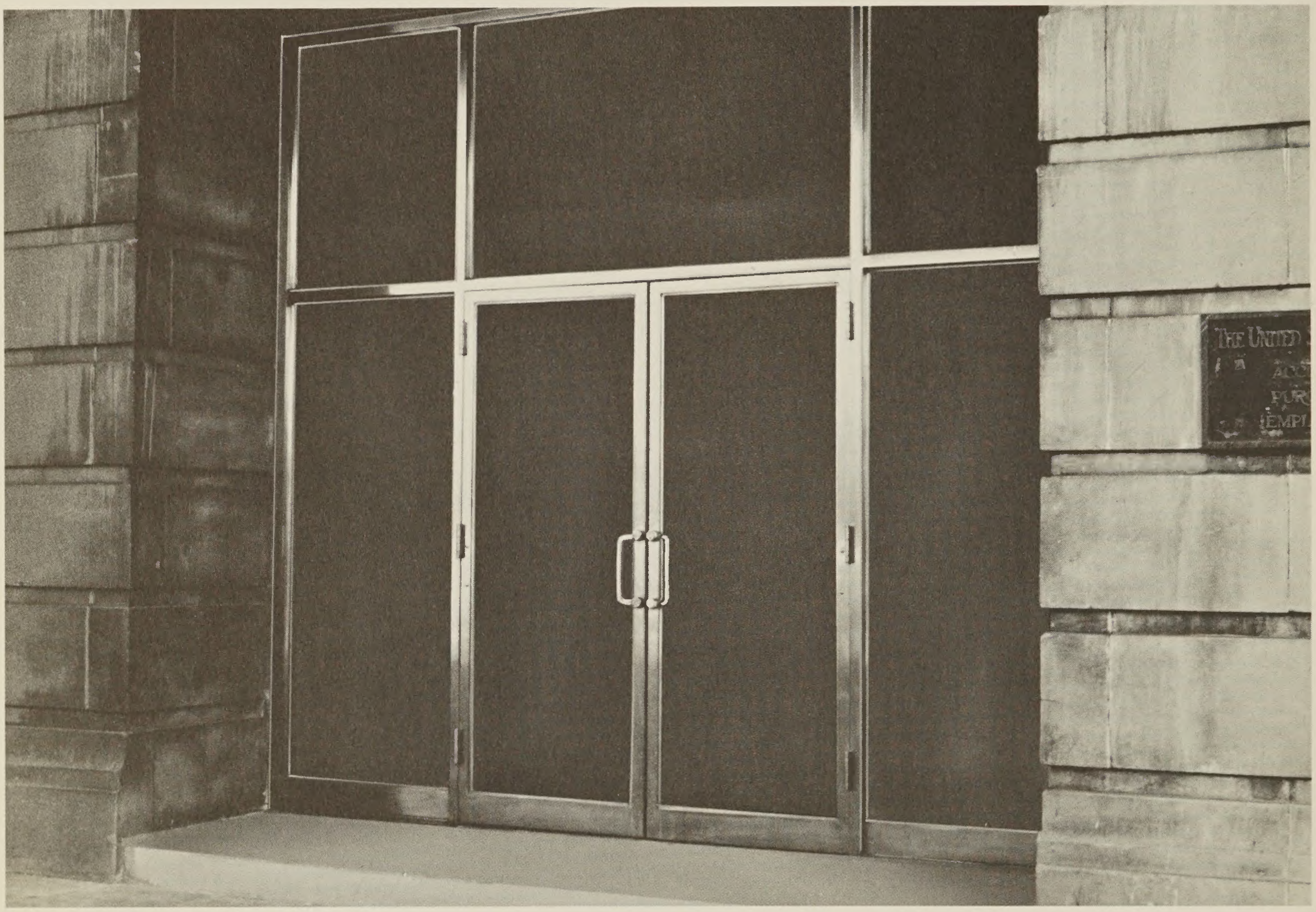

Clip angle by others
Continuous 3" x 4" angle by others
11 ga. steel clips and sub-frame
1/8" formed stainless steel channel
1/4" polished plate glass by others
1/2" x 1/2" stainless steel bar glazing stop
16 ga. stainless steel rail
6"
Threshold by others
(floor closer as specified)

VERTICAL SECTION Scale: 3" = 1' – 0"


11 ga. steel sub-frame
Interior glazing stop attached by stn. stl. m. s.
1/4" reinforcing for panic hardware
16 ga. stn. stl.
5"

HORIZONTAL SECTION Scale: 3" = 1' – 0"

BRONZE DOORS



United States Playing Card Company Building
Cincinnati, Ohio
Architects: A. M. Kinney Associates

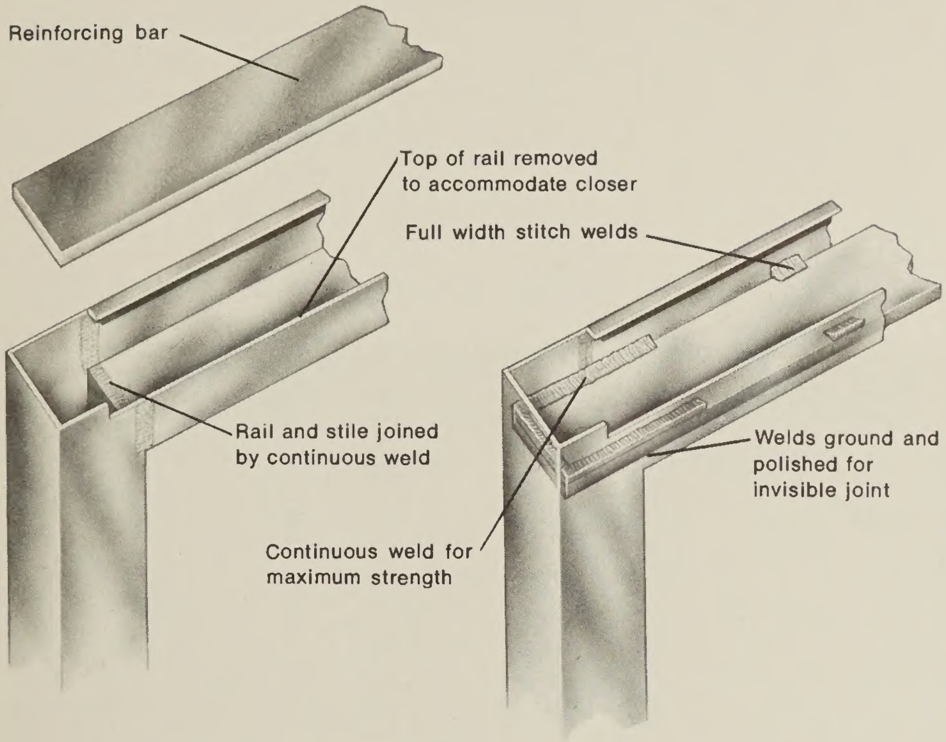
The rich appearance and warmth of bronze is traditionally synonymous with architectural elegance. Michaels combine sound engineering and skillful craftsmanship to produce doors of great durability and distinctive beauty. Michaels years of experience have made them masters of the difficult art of bronze finishing. A full range of finishes is available from natural bright architectural bronze to dark oiled statuary.

The doors and frames illustrated here are an example of Michaels versatility. Designed by Michaels engineers, this is a typical custom entrance fabricated entirely from standard sections available from stock.

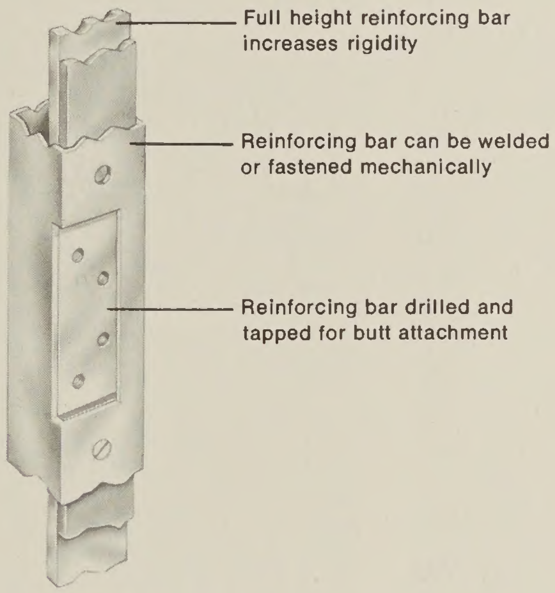
The frames and basic door structure are fabricated from cold drawn red brass tubing (copper alloy #230) for greater strength, light weight and weldability. Glazing stops are fabricated from standard architectural bronze extrusions (copper alloy #385) and are mechanically fastened to the frame by machine screws. The resulting doors are light, exceptionally strong, and handsome in detail, yet economical to fabricate.

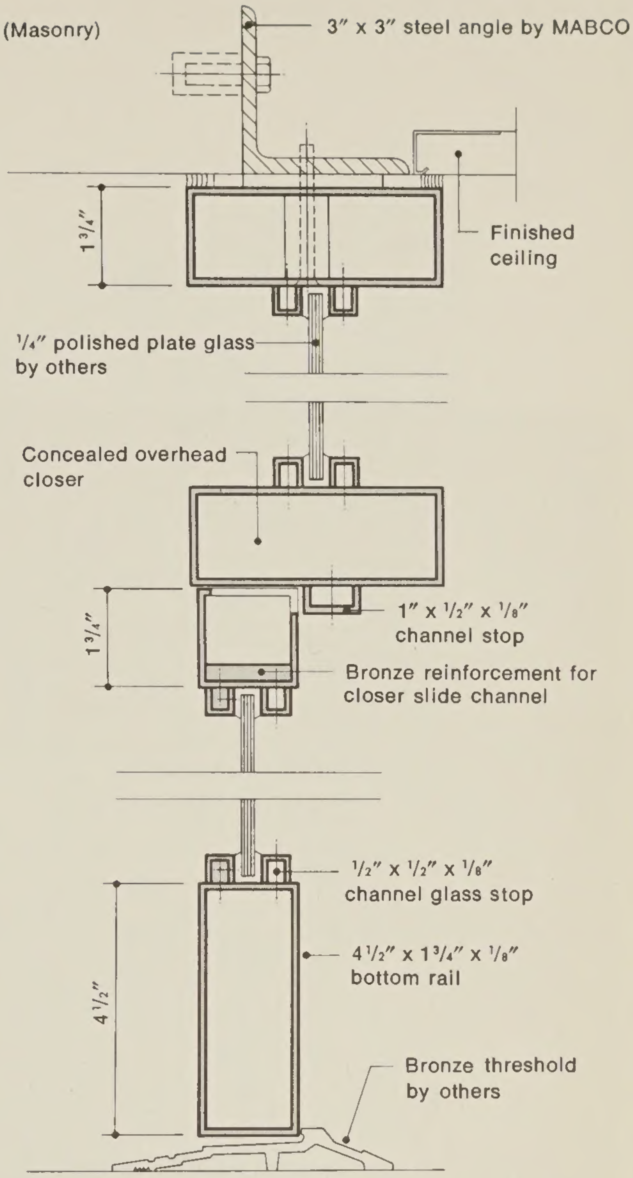
Polished to a natural satin finish, the crisp, coined edges, graceful narrow stiles and careful detailing are typical of the finest custom metal work, while simple design and the use of stock materials keep costs low.

INSTALLATION OF REINFORCING


Reinforcing bar
Top of rail removed to accommodate closer
Full width stitch welds
Rail and stile joined by continuous weld
Welds ground and polished for invisible joint
Continuous weld for maximum strength

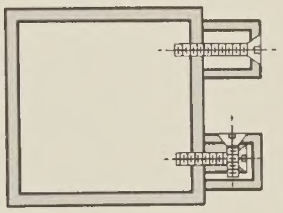
CUT OUT FOR BUTTS WITH REINFORCING


Full height reinforcing bar increases rigidity
Reinforcing bar can be welded or fastened mechanically
Reinforcing bar drilled and tapped for butt attachment

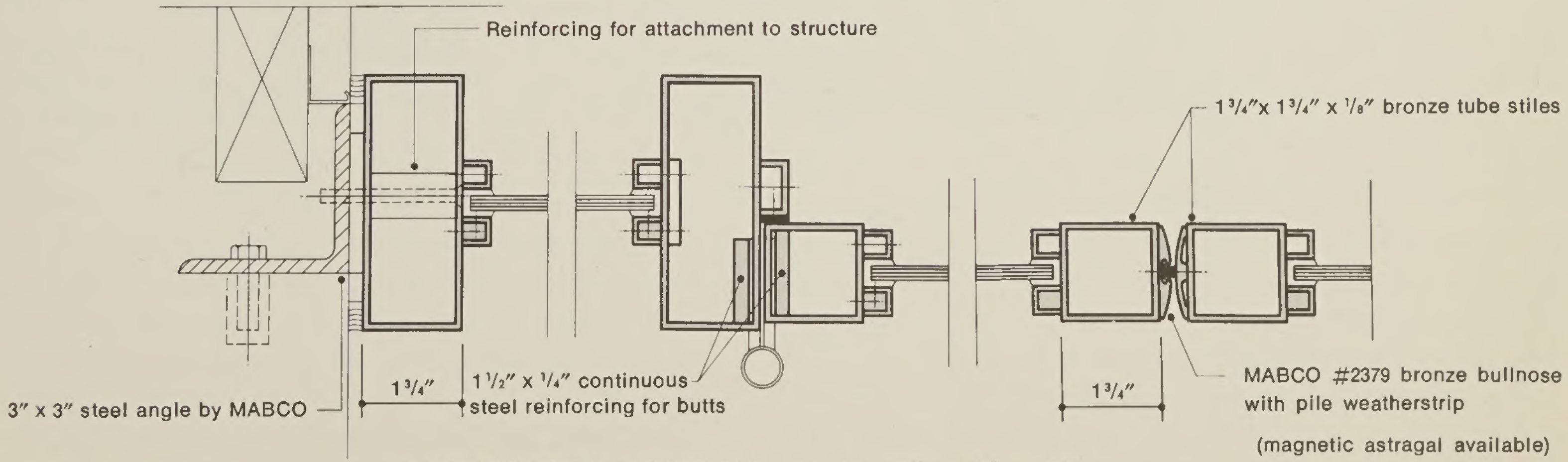

(Masonry)
3″ x 3″ steel angle by MABCO
Finished ceiling
1 3/4″
1/4″ polished plate glass by others
Concealed overhead closer
1 3/4″
1″ x 1/2″ x 1/8″ channel stop
Bronze reinforcement for closer slide channel
1/2″ x 1/2″ x 1/8″ channel glass stop
4 1/2″ x 1 3/4″ x 1/8″ bottom rail
4 1/2″
Bronze threshold by others

VERTICAL SECTION Scale: 3″ = 1′ – 0″

HALF SIZE SECTION THROUGH STILE

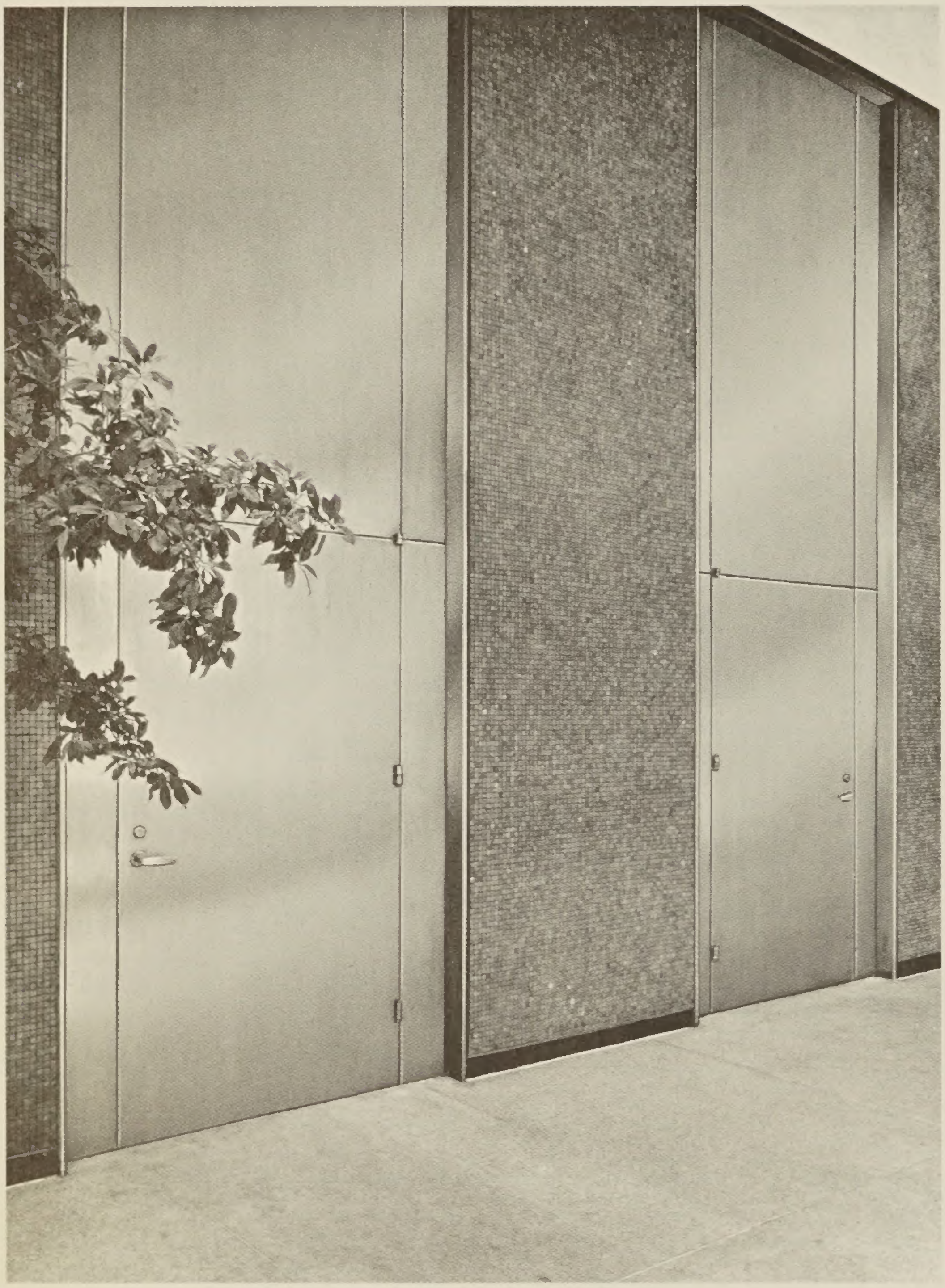


Section through stile shows mechanical fastening of glazing stops. Note concealed fastening of exterior channel.

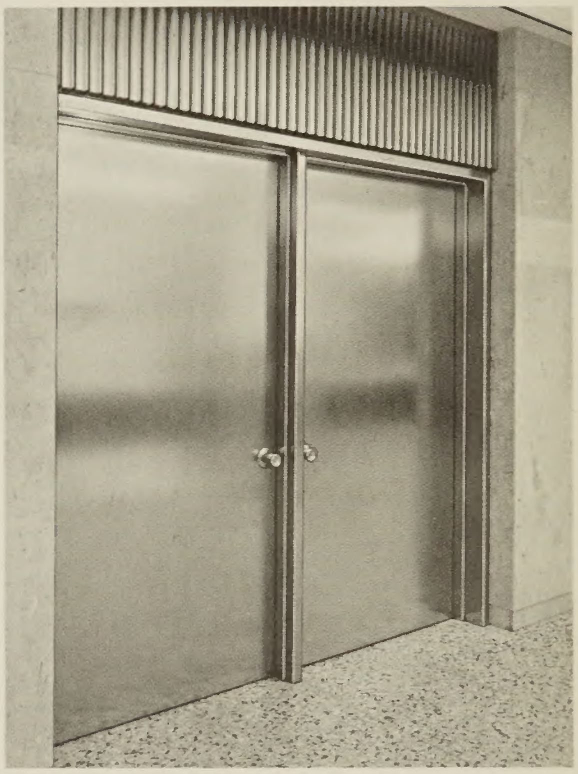

Reinforcing for attachment to structure
1 3/4″x 1 3/4″ x 1/8″ bronze tube stiles
3″ x 3″ steel angle by MABCO
1 3/4″
1 1/2″ x 1/4″ continuous steel reinforcing for butts
1 3/4″
MABCO #2379 bronze bullnose with pile weatherstrip
(magnetic astragal available)

HORIZONTAL SECTION Scale: 3″ = 1′ – 0″

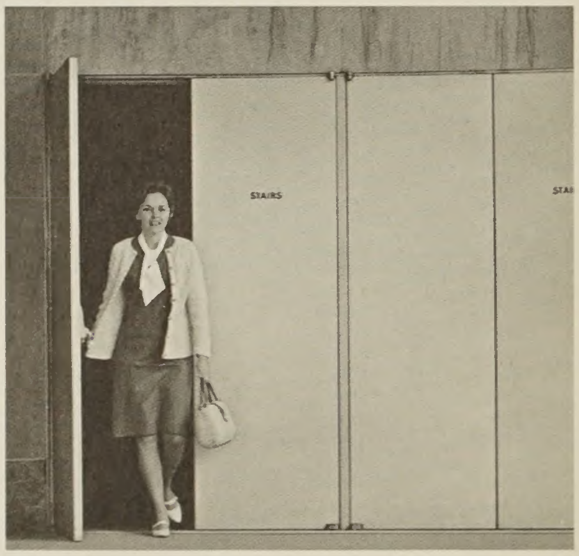
FLUSH DOORS



Huntington National Bank
Columbus, Ohio
Architects: Skidmore, Owings & Merrill



Buffalo and Erie County Public Library
Buffalo, New York
Architects: James W. Kideney and Associates and
Paul Harbach and Elon B. Clark, Jr.



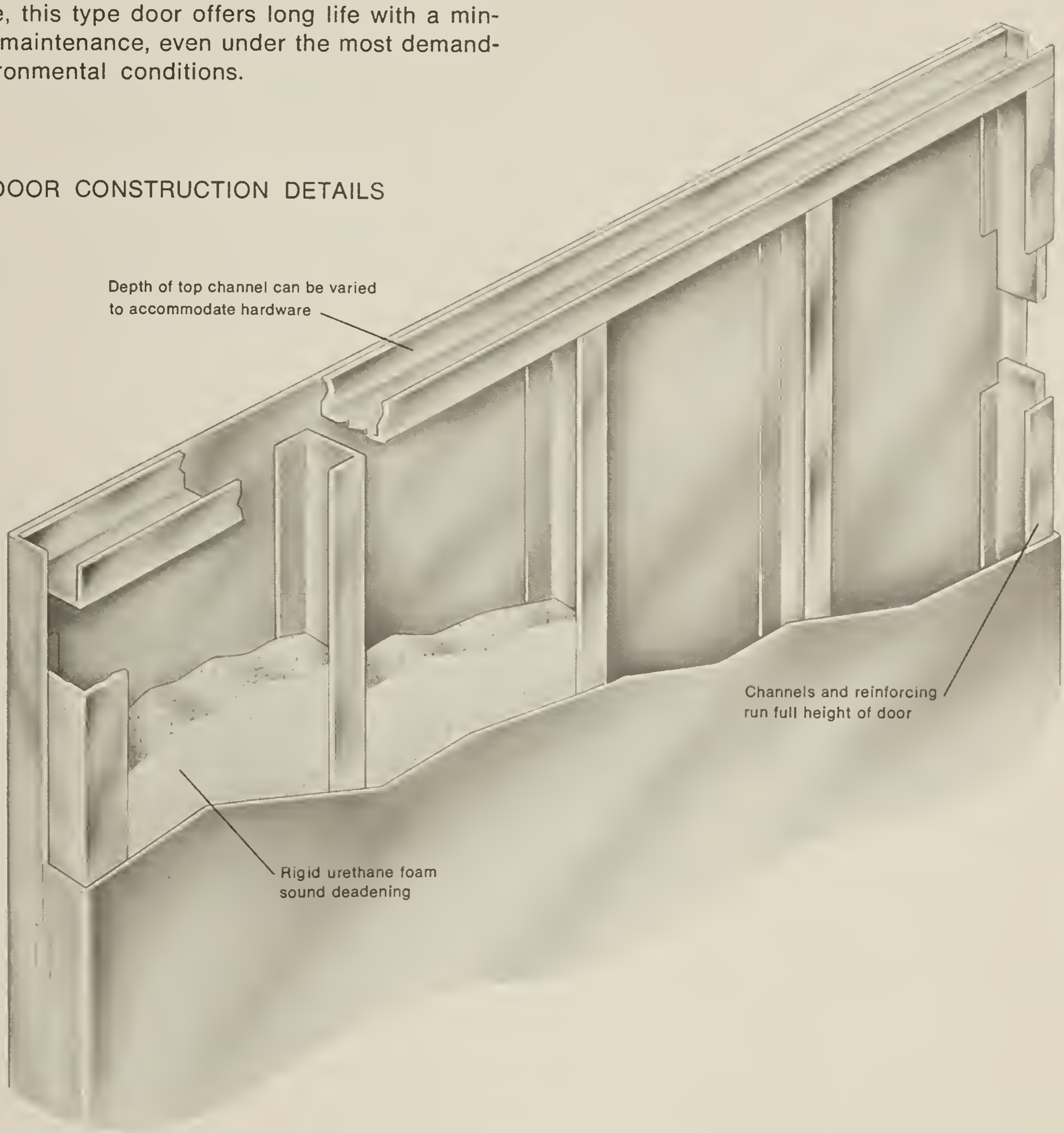
William Penn Memorial Museum and Archives Building
Philadelphia, Pennsylvania
Architects: Laurie & Green, Harrisburg, Pennsylvania

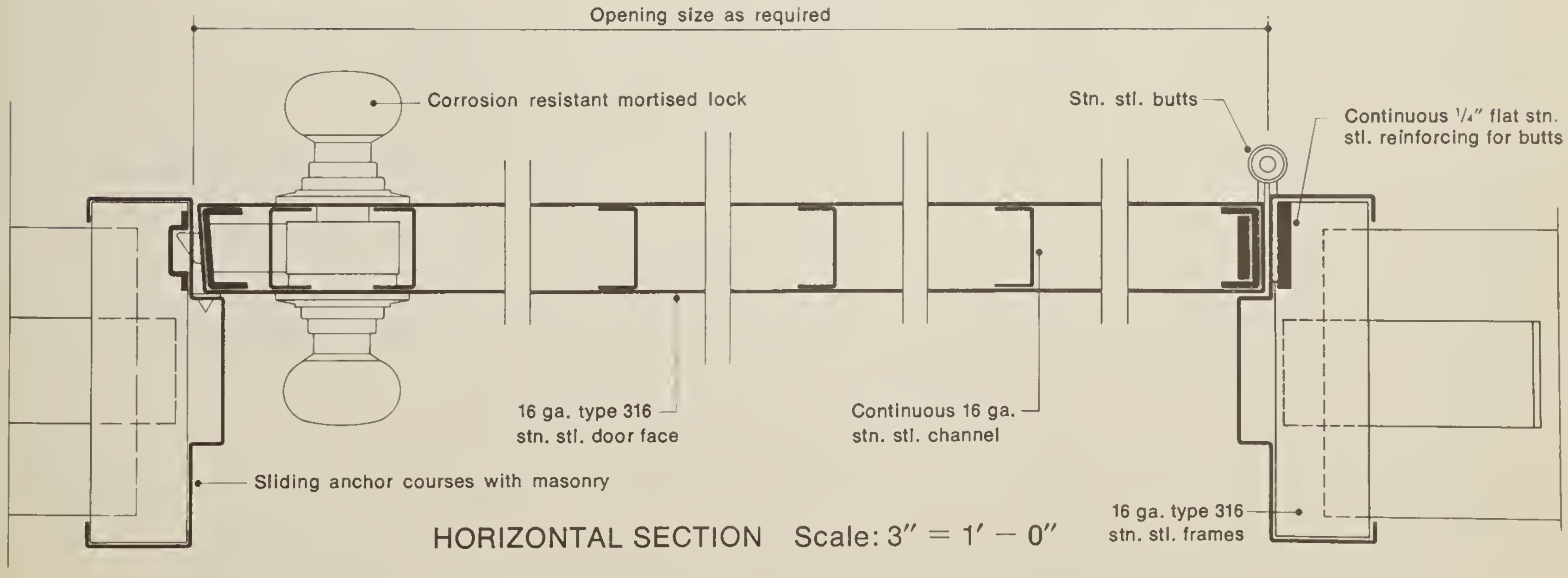
Michaels offers flush doors of unusual strength and beauty in stainless steel, aluminum and bronze in the full range of architectural finishes. Custom flush doors are particularly suitable where it is desirable to match other ornamental metal work, or where special requirements for size, strength or hardware accommodation make the use of standard doors impractical.

Doors are constructed of two heavy gage face panels welded to continuous height channels. In the case of aluminum flush doors, the channels are welded to one face from the inside, and the second face is bonded to the framework by structural adhesives to preclude the possibility of discoloring anodic finish.

Illustrated below is a single leaf flush door for a natatorium fabricated in type 316 stainless steel for extra resistance to corrosion. Fitted with corrosion resistant hardware, this type door offers long life with a minimum of maintenance, even under the most demanding environmental conditions.

FLUSH DOOR CONSTRUCTION DETAILS


Depth of top channel can be varied to accommodate hardware
Channels and reinforcing run full height of door
Rigid urethane foam sound deadening

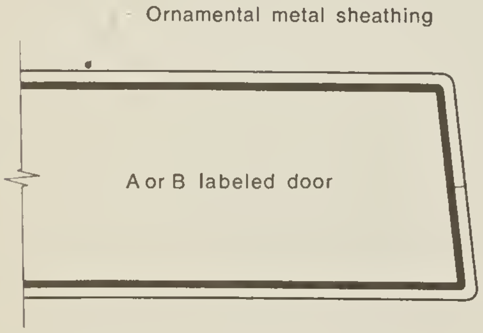

Opening size as required
Corrosion resistant mortised lock
Stn. stl. butts
Continuous 1/4" flat stn. stl. reinforcing for butts
16 ga. type 316 stn. stl. door face
Continuous 16 ga. stn. stl. channel
Sliding anchor courses with masonry
16 ga. type 316 stn. stl. frames

HORIZONTAL SECTION Scale: 3" = 1' – 0"

LAMINATED LABELED FIRE DOORS AND FRAMES

Where codes require the use of UL labeled fire doors and distinctive appearance is desired, the Michaels laminated labeled door provides an excellent solution. Laminated labeled doors and frames are standard manufactured UL rated units to which Michaels bonds a sheath of ornamental metal. Fire retardant qualities remain unaffected, but appearance is greatly enhanced. The laminated labeled door makes it possible to continue a motif in bronze, stainless steel or anodized aluminum in a lobby or other space.

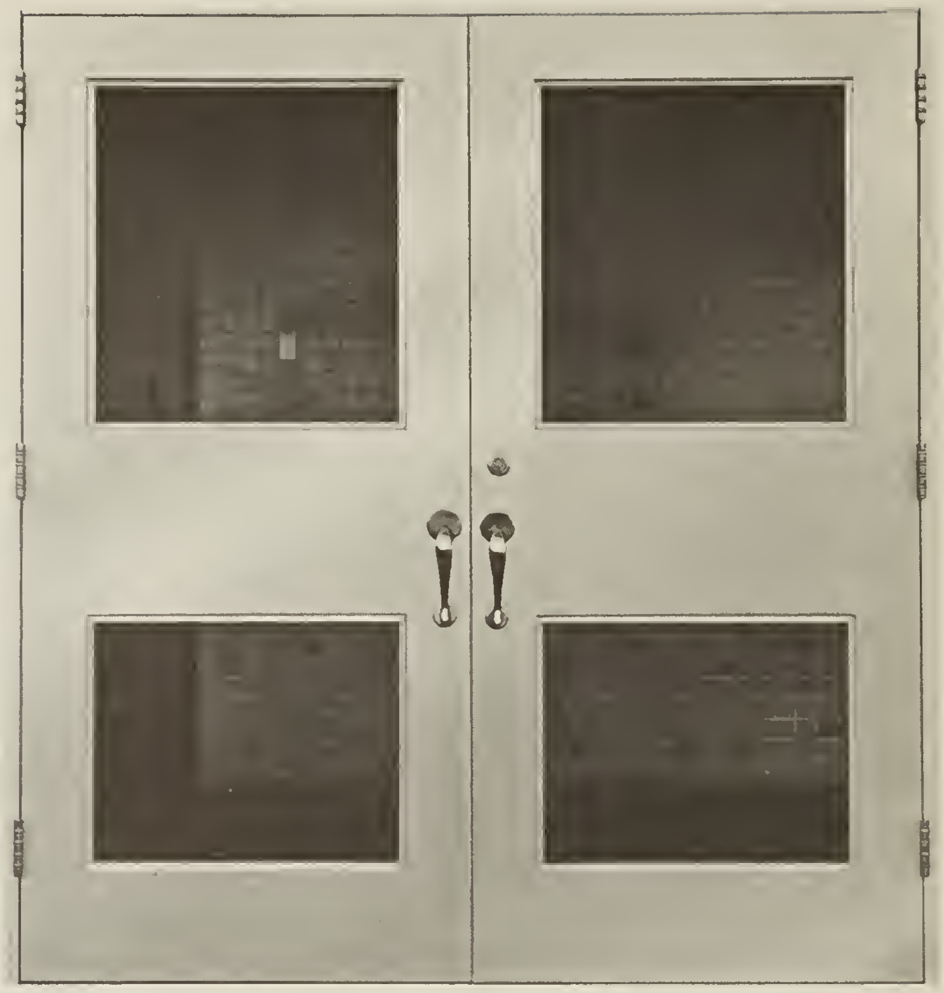
HALF SIZE SECTION OF LAMINATED LABELED DOOR



The sheath of ornamental metal is bonded by structural adhesives to both faces of the labeled door. The faces meet at a precise butt joint on the door edge where they are mechanically fastened to the labeled door. The edges are then ground flush and polished. Both flush and panel doors are suitable for lamination.

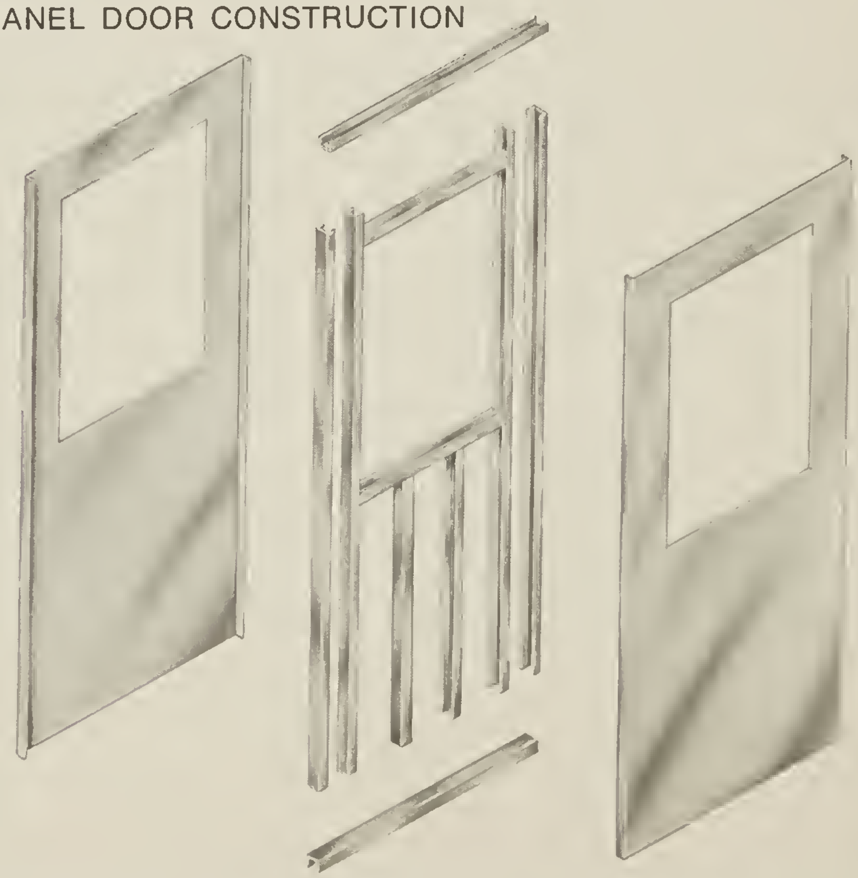
Frames may be laminated to match the doors with the sheathing precision fitted to form perfect mitered joints.

PANEL DOORS



Henry Ford High School
Detroit, Michigan
Architects: Giffels & Rossetti, Inc.

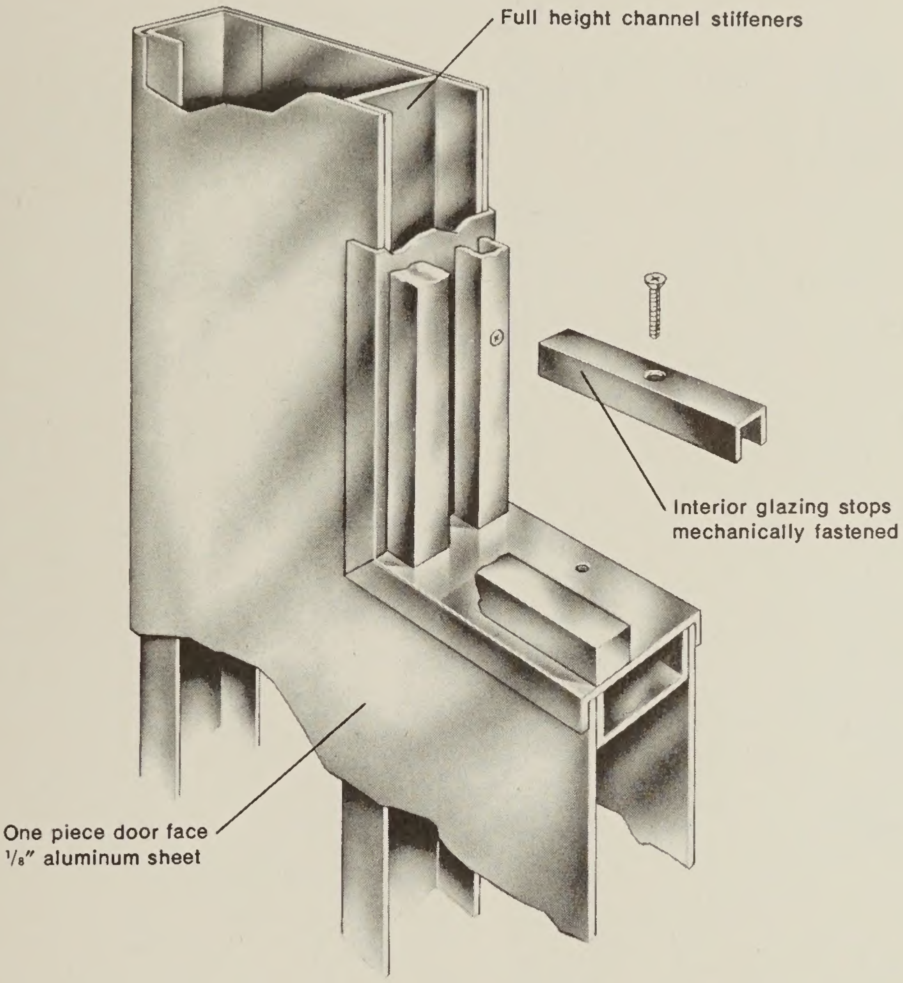
PANEL DOOR CONSTRUCTION



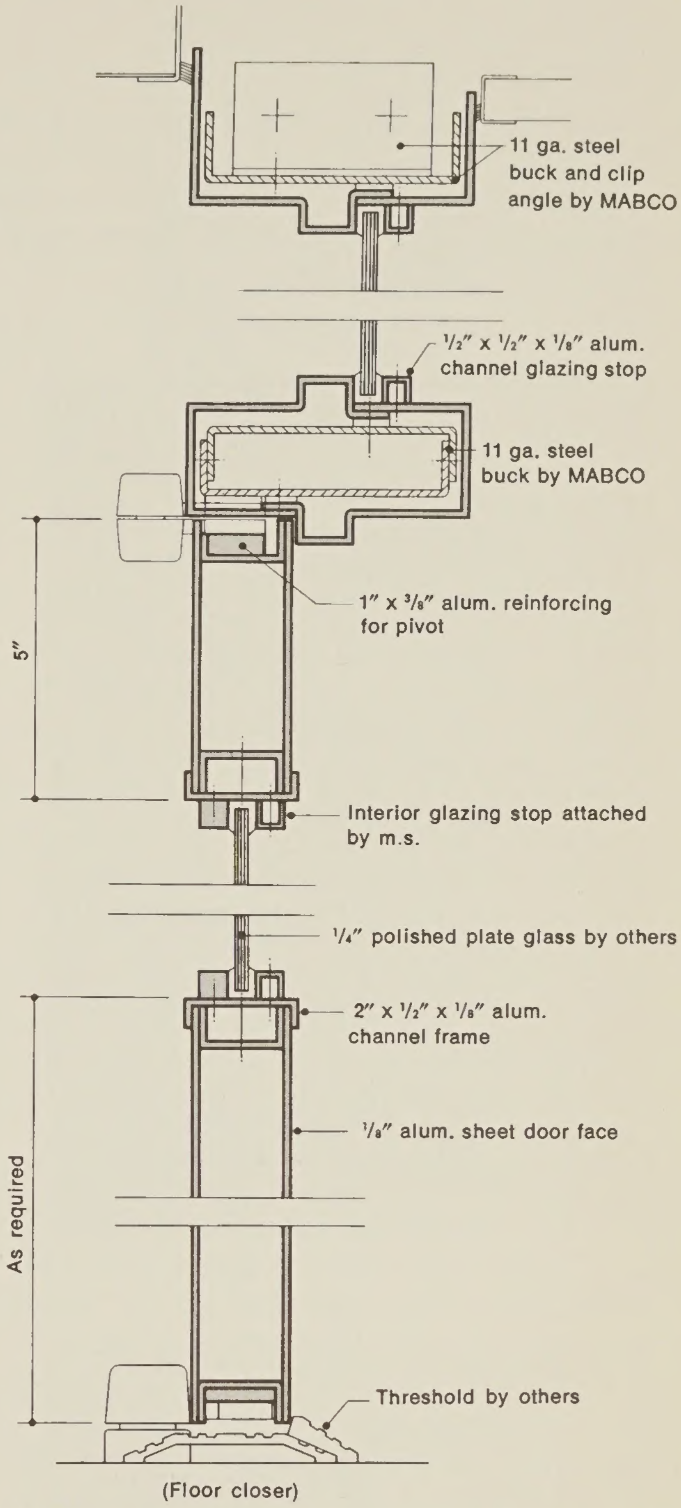
Exploded view shows one-piece door faces and sub-frame of vertical and horizontal channels. Placement of reinforcing members is determined by size and location of cutouts.

Panel doors by Michaels offer the architect unlimited design freedom where partial glazing is desired. Size and placement of cutouts are at the architect's discretion. Doors may be fabricated in aluminum, stainless steel and bronze to satisfy the requirements of any architectural concept.

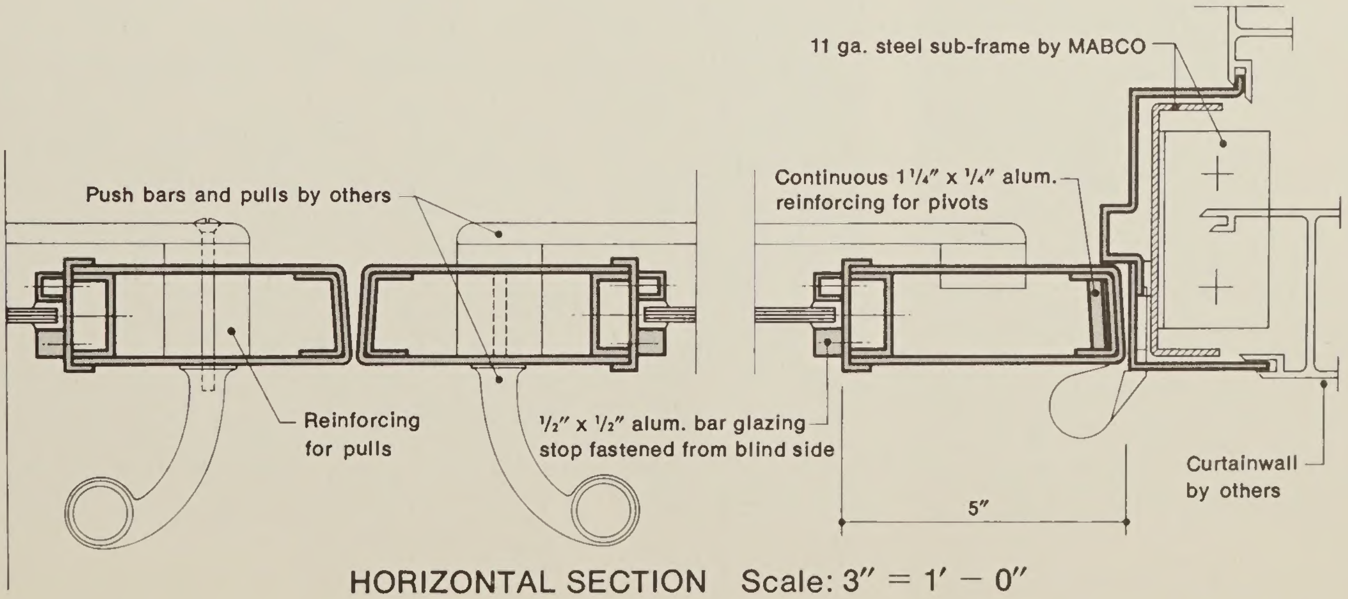
STILE AND PANEL CUTOUT DETAIL


Full height channel stiffeners
Interior glazing stops mechanically fastened
One piece door face
1/8" aluminum sheet

Detail shows framing of panel cutout. Exterior glazing stops are attached from blind side prior to installation of panel frame. Standard extrusions are utilized in framing the panel cutout of the aluminum door shown.


11 ga. steel buck and clip angle by MABCO
1/2" x 1/2" x 1/8" alum. channel glazing stop
11 ga. steel buck by MABCO
5"
1" x 3/8" alum. reinforcing for pivot
Interior glazing stop attached by m.s.
1/4" polished plate glass by others
2" x 1/2" x 1/8" alum. channel frame
1/8" alum. sheet door face
As required
Threshold by others
(Floor closer)

VERTICAL SECTION Scale: 3" = 1' – 0"

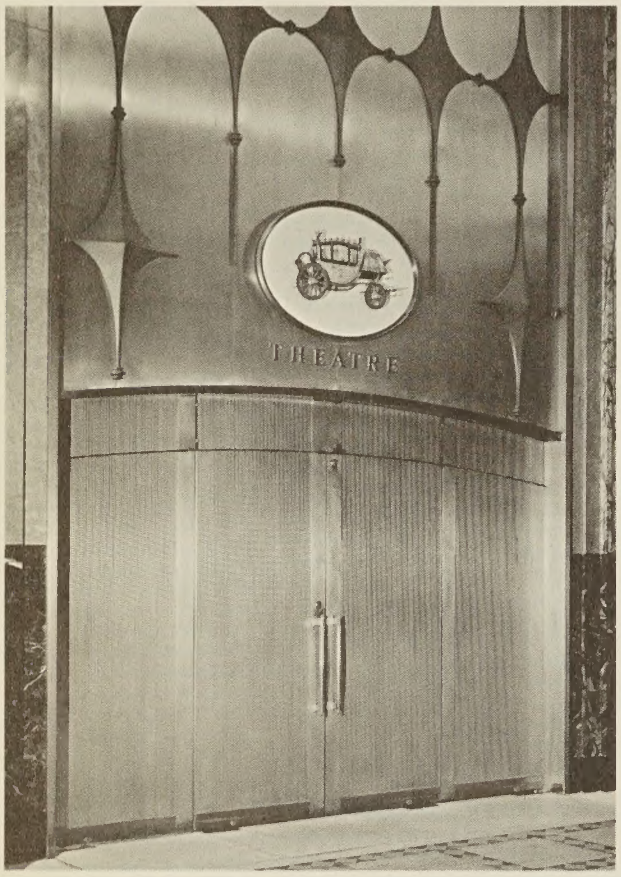

11 ga. steel sub-frame by MABCO
Push bars and pulls by others
Continuous 1 1/4" x 1/4" alum. reinforcing for pivots
Reinforcing for pulls
1/2" x 1/2" alum. bar glazing stop fastened from blind side
Curtainwall by others
5"

HORIZONTAL SECTION Scale: 3" = 1' – 0"

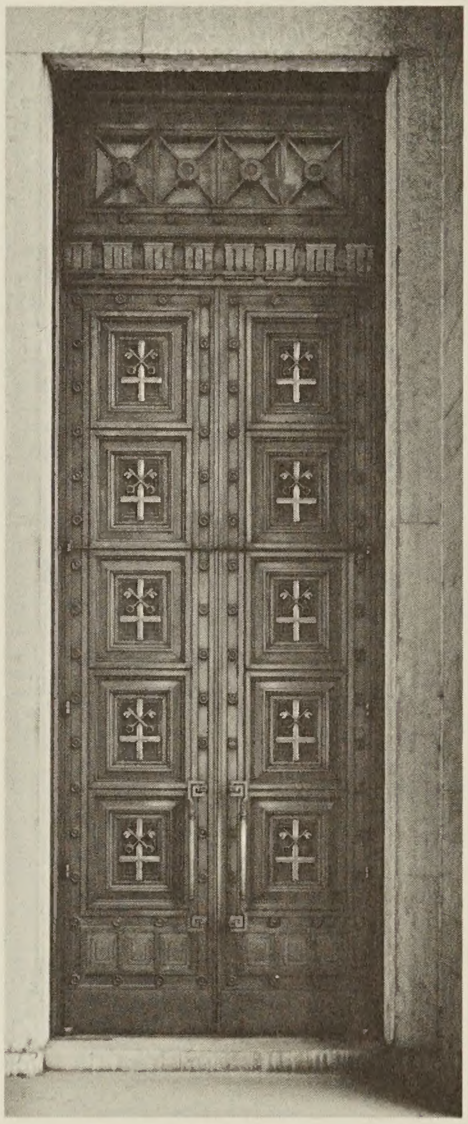
AVERY

SPECIALTY DOORS

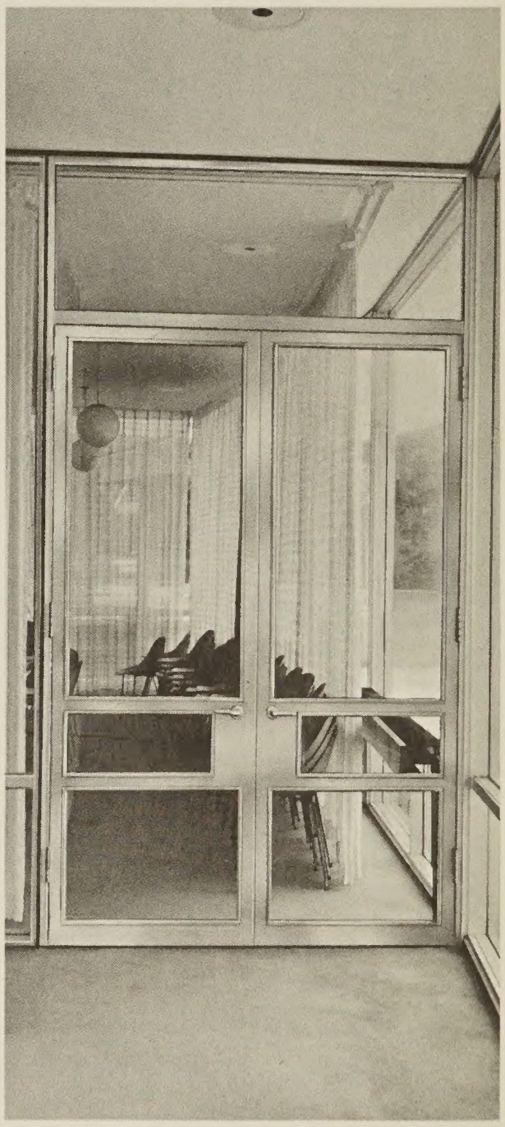
The range of metal doors that can be detailed and fabricated by the Michaels organization is virtually unlimited. Cast doors, doors of exceptional dimensions and strengths, doors requiring unusual detailing . . . all are available from Michaels custom metal fabricating facilities.



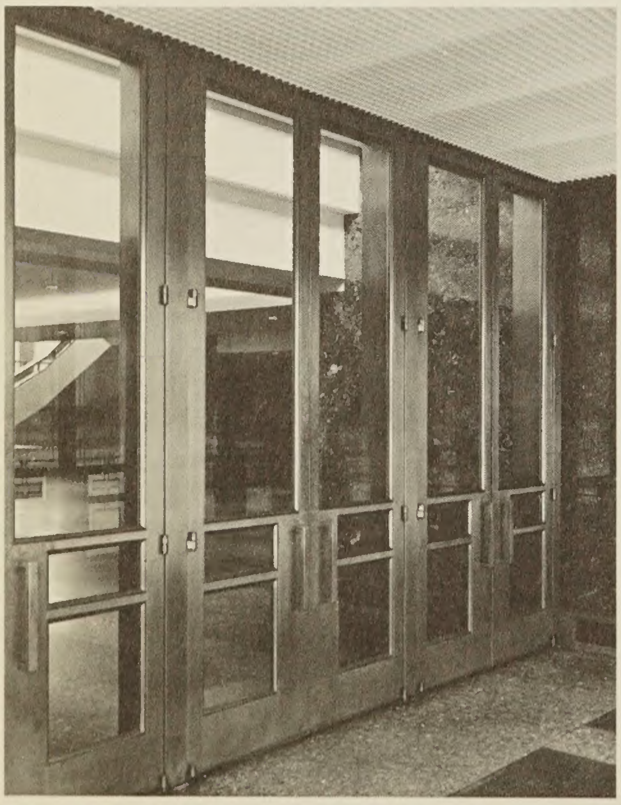
Fisher Theatre, Fisher Building
Detroit, Michigan
Architects: Rapp & Rapp



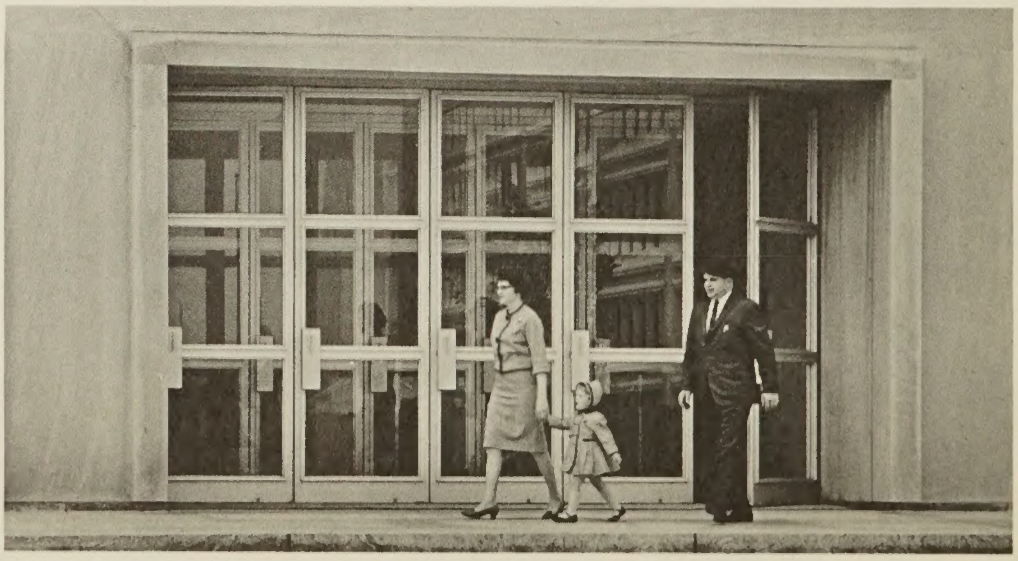
St. Peter in Chains Cathedral
Cincinnati, Ohio
Architect: Edward J. Schulte



American Society for Metals Building
Novelty, Ohio
Architect: John T. Kelley



Detroit Institute of Arts
Detroit, Michigan
Architects: Harley, Ellington, Cowin, Stirton & Associates

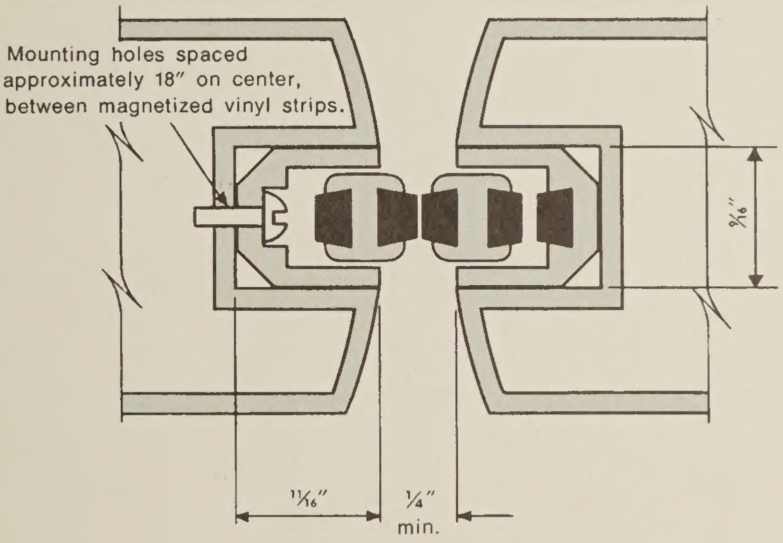


William Penn Memorial Museum and Archives Building
Philadelphia, Pennsylvania
Architects: Laurie & Green, Harrisburg, Pennsylvania

ASTRAGALS

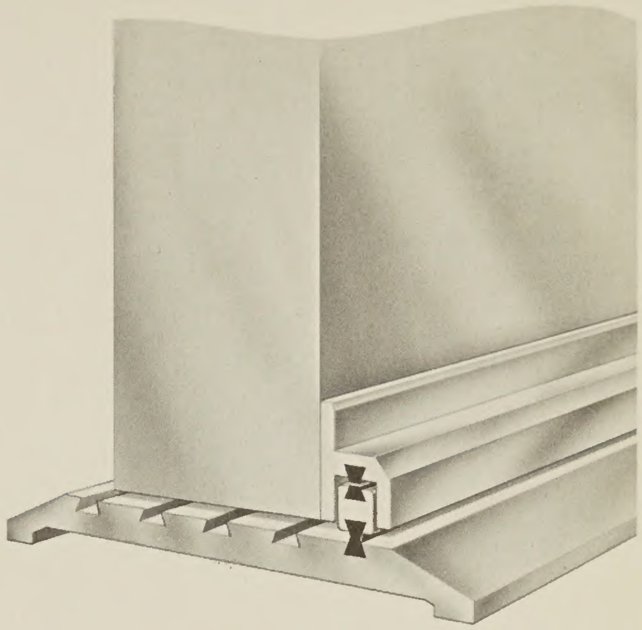
Magnetic Weather Sealant for Doors

Complementing their background in architectural doors, Michaels has been instrumental in developing quality weather sealing for entrances. Their latest innovation is the Magnetic Astragal* which provides a firm surface to surface seal against weather and dust. The gaps that cause a consistent and expensive loss of heated or cooled air are quickly and positively closed through the joining of magnetically attracted plungers. No adjustment is required since the floating plungers faced with magnetized vinyl are attracted to each other despite variations in door alignment. Reverse magnetic action snaps the plungers quickly apart when the door is opened to keep friction and wear at a minimum. Surface or mortise applications are possible.


Mounting holes spaced approximately 18″ on center, between magnetized vinyl strips.
9/16″
11/16″
1/4″
min.

TYPE ME MORTISE ASTRAGAL

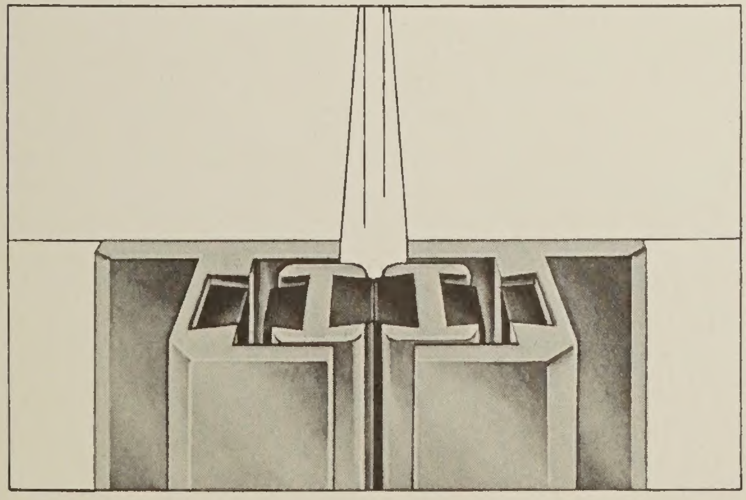
This version of Magnetic Astragal functions identically to surface model, but may be recessed within the facing stiles of the entrance doors.



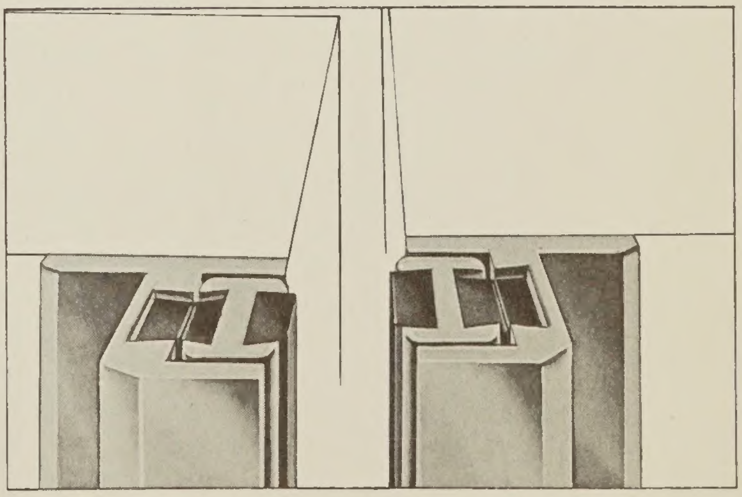
Magnetic Thresholds* used in conjunction with Astragals installed on the door bottoms assure complete weather closure for entrances. The Astragal plunger responds to a magnetic strip provided in an aluminum or stainless steel threshold. The plunger remains magnetically stowed, clear of the threshold, except when door is fully closed; then magnetic action provides a positive threshold seal. When door is opened, magnetic action in Astragal snaps plunger clear without dragging. The mechanical problems often associated with threshold sealers are eliminated with the new self aligning, magnetically operated Michaels Threshold.

Michaels Magnetic Astragals and Thresholds may be specified for factory application as a feature of Michaels doors; or they may be ordered separately to use with any metal or wood entrance doors. Details and specifications are available.

*Patent Pending



Door closed. Plungers snap together for magnet-tight weather seal.



Door opened. Plungers retract with little friction or wear.

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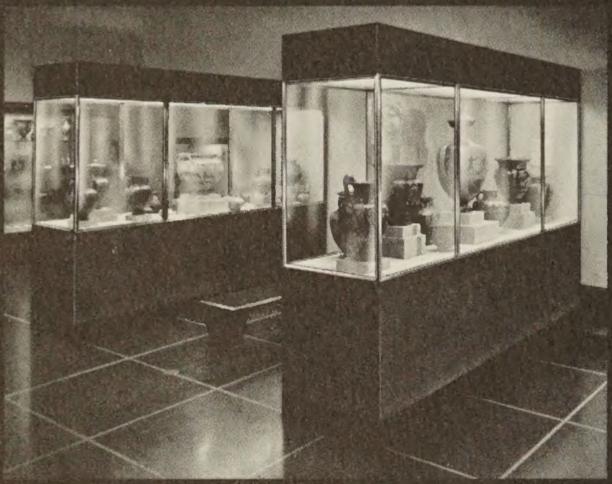

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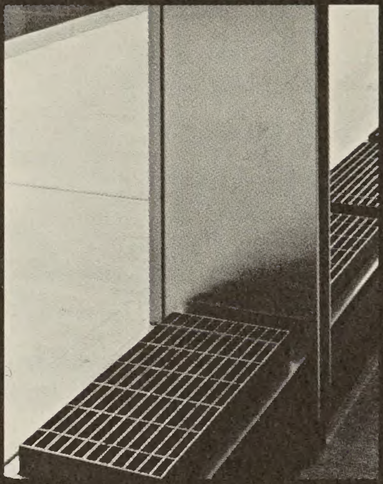
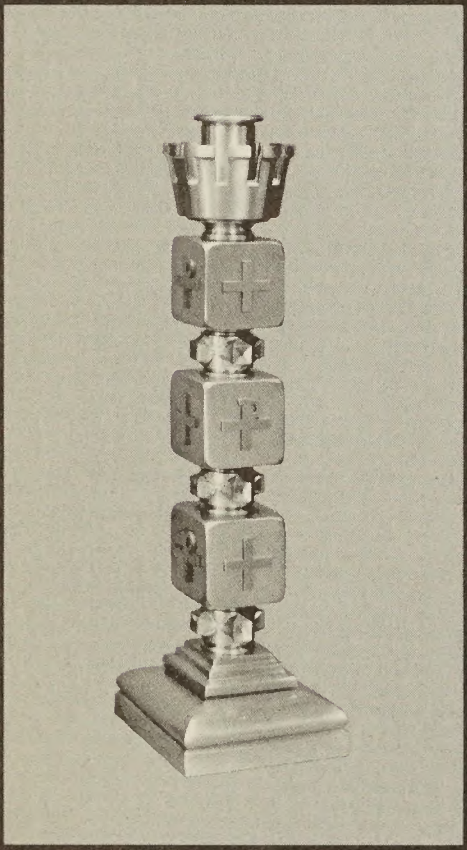


2.

UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS

3.



4.

5.

1. Exhibit Cases. 2. Custom Architectural Metalwork. 3. Tablets and Plaques. 4. Custom Ecclesiastical Metalwork. 5. Metal Curtain Walls and Window Walls. Also: Railings — Custom Store Fronts — Entrances and Doors—Architectural Castings—Astragals—Windows—Bank Equipment.

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THE MICHAELS ART BRONZE CO.

P.O. Box 668, Covington, Kentucky • Plant & Office: Kenton Lands Rd., Erlanger, Kentucky

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